It is Claimed:

1. A dehydrated composition, useful for mammalian therapy, comprising:

substantially shelf-stable freeze-dried platelets selected from the mammalian species for which therapy is intended, the platelets being effectively loaded with trehalose to preserve biological properties during freeze-drying and rehydration, wherein the platelets are rehydratable so as to have a normal response to at least one agonist.

2. The dehydrated composition as in claim 1 wherein the amount of trehalose loaded inside the freeze-dried blood platelets is from about 10 mM to about 50 mM.

3. The dehydrated composition as in claim 1 wherein the normal response to at least one agonist is a response to thrombin in a physiological concentration.

4. The dehydrated composition as in claim 1 wherein the preserved biological properties are mediated via characteristic platelet surface receptors.

5. The dehydrated composition as in claim 1 wherein the at least one agonist is selected from the group consisting of thrombin, collagen, ristocetin, and ADP.

6. The dehydrated composition as in claim 1 wherein the composition is substantially shelf stable at ambient temperatures.

7. The dehydrated composition as in claim 1 wherein the effective loading includes incubating platelets at a temperature from greater than about 25°C to less than about 40°C so as to uptake external trehalose via fluid phase endocytosis.

8. The dehydrated composition as in claim 1 wherein the platelets are human platelets.

9. The dehydrated composition as in claim 1 wherein the freeze-dried platelets before freeze-drying are characterized by a homogenous distribution of trehalose therein of about 20 mM.

10. The dehydrated composition as in claim 1 wherein moisture is in an amount not greater than about 5 weight percent.

11. The dehydrated composition as in claim 1 further including a therapeutic agent selected from the group consisting of an antibiotic, an antifungal, a growth factor, and mixtures thereof.

12. A therapeutic composition, comprising:

platelets having a homogeneously distributed concentration of a therapeutic agent therein, the platelets determinable to have a normal response to thrombin.

13. The therapeutic composition as in claim 12 wherein the determinable normal response to thrombin is clot formation within about three minutes at 37°C.

14. The therapeutic composition as in claim 12 wherein the therapeutic agent includes an anti-thrombic agent, an antibiotic, an anti-mitotic agent or an anti-angiogenic agent.

15. A hemostasis aid, comprising:

substantially shelf-stable freeze-dried platelets selected from the mammalian species for which therapy is intended, the platelets being effectively loaded with trehalose to preserve biological properties during freeze-drying and rehydration, wherein the platelets are rehydratable so as to have a normal response to at least one agonist; and,

a biocompatible matrix on which the platelets are carried.

16. The hemostasis aid as in claim 15 wherein the platelets are coated on or impregnated in the matrix.

17. The hemostasis aid as in claim 15 wherein the matrix is a woven or non-woven bandage, wound dressing, or suture.

18. A process of preparing a dehydrated composition, useful for therapy to a mammal, comprising:

providing platelets selected from the mammalian species for which therapy is intended, the platelets being effectively loaded with an oligosaccharide to preserve biological properties, wherein the loading includes incubating the platelets at a temperature from greater than about 25°C to less than about 40°C with an oligosaccharide solution, the solution having up to about 50 mM oligosaccharide therein, the incubating sufficient to load oligosaccharide inside the platelets in an amount from about 10 mM to about 50 mM;

cooling the loaded platelets to below their freezing point; and,

lyophilizing the cooled platelets.

19. The process as in claim 18 wherein the platelets are human platelets.

20. The process as in claim 18 wherein the incubating temperature is about 37°C.

21. The process as in claim 18 wherein the incubating is for at least about two hours.

22. The process as in claim 18 wherein the incubating is for at least about four hours.

23. The process as in claim 18 wherein the cells are human platelets, the incubating is between about 30°C and about 37°C, the solution has trehalose in an amount between about 20 mM and 50 mM, and the incubation is for at least about four hours.

24. The process as in claim 23 wherein the cooling is at a rate of about 2°C to 5°C per minute and is conducted in a drying buffer.

25. The process as in claim 18 wherein the lyophilizing is conducted at a temperature below about -32°C and removes about 95 weight percent of water.

26. A therapeutic process of using a dehydrated composition, comprising:

providing freeze-dried platelets selected from a mammalian species for which therapy is intended, the platelets being effectively loaded with trehalose to preserve biological properties; and,

applying the freeze-dried platelets to a wound or burn of the selected mammalian species.

27. The process as in claim 26 wherein the freeze-dried platelets are carried on a biologically compatible matrix.

28. The process as in claim 26 wherein the freeze-dried platelets are rehydrated prior to or upon application to the wound or burn.

29. The process as in claim 26 wherein the freeze-dried platelets are prehydrated in moisture saturated air before application.

30. The process as in claim 29 wherein the prehydrated, freeze-dried platelets are rehydrated following prehydration.

31. The process as in claim 29 wherein the prehydration is conducted at about 37°C for between about one hour to about three hours.

32. The process as in claim 29 wherein the prehydration is sufficient to bring the water content of the freeze-dried platelets to between about 35 weight percent to about 50 weight percent.